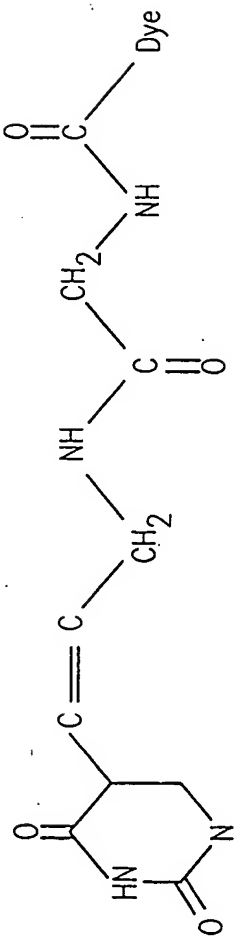
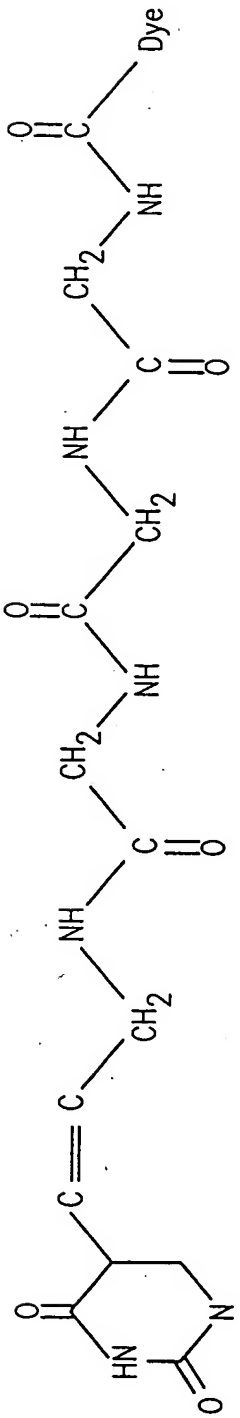
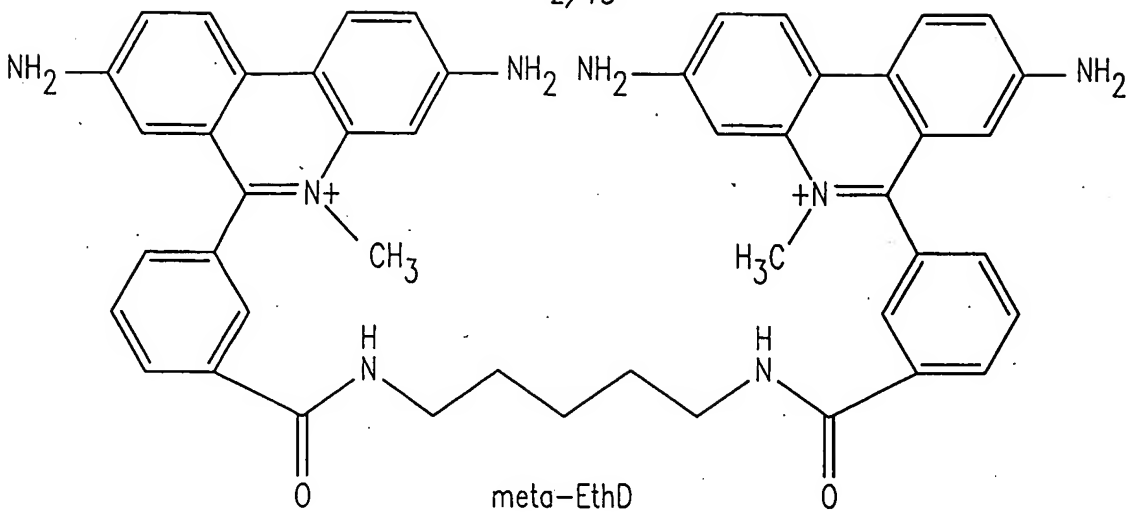
FIG. 1

Diglycinyl linker

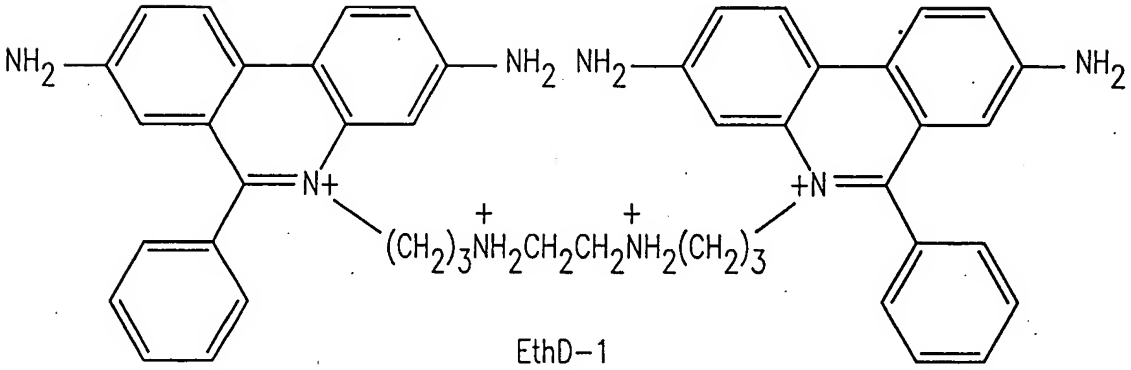


Tetraglycinyl linker

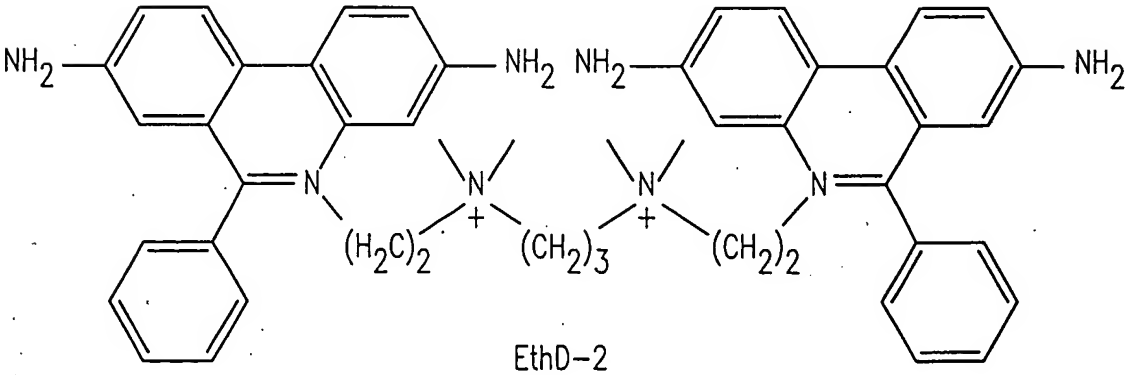




meta-EthD



EthD-1



EthD-2

FIG. 2

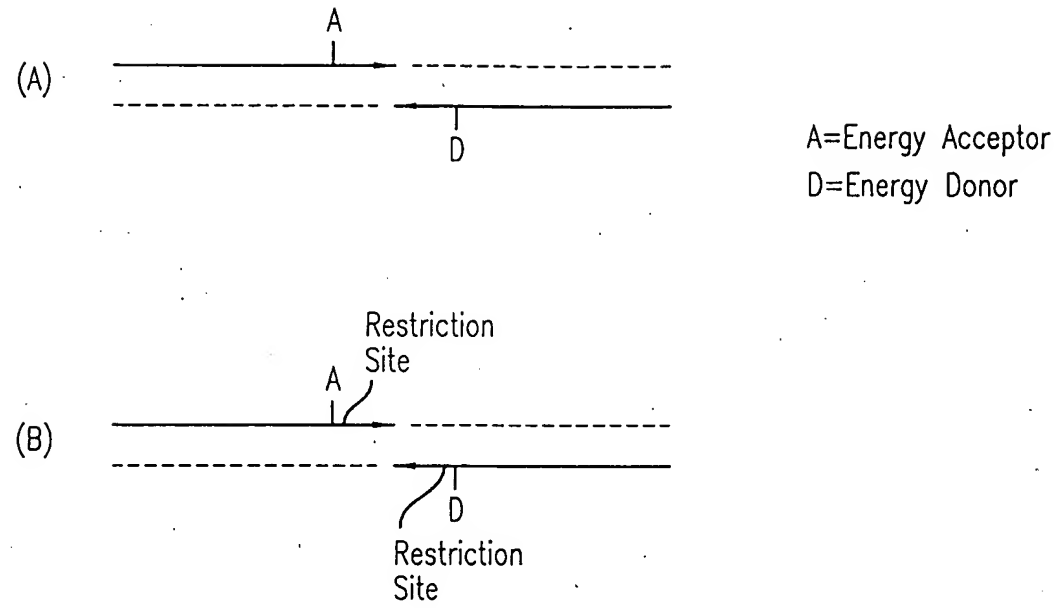

(A)
A
D
A=Energy Acceptor
D=Energy Donor
(B)
Restriction Site
A
D
Restriction Site
(C)
A
D
(D)
L(+)
A
R(+)
L(−)
D
R(−)
LCR
L(+)
A
R(+)
L(−)
B
R(−)

FIG. 3

Target Sequence

GCGACCTGCGAATGCTATGGATCAGGCTAGCCA
CGCTGGACGCTTACGATACCTAGTCCGATCGGT

(A)

Donor

GCGACCTGCGAATGCTATggatcaggctagcca
cgctggacgcttacgataCCTAGTCCGATCGGT

Acceptor

(B)

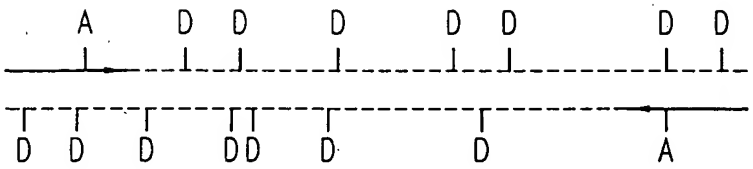
Donor

GCGACCTGCGAATGCTATggatcaggctagcca
cgctggacgcttacgatacctAGTCCGATCGGT

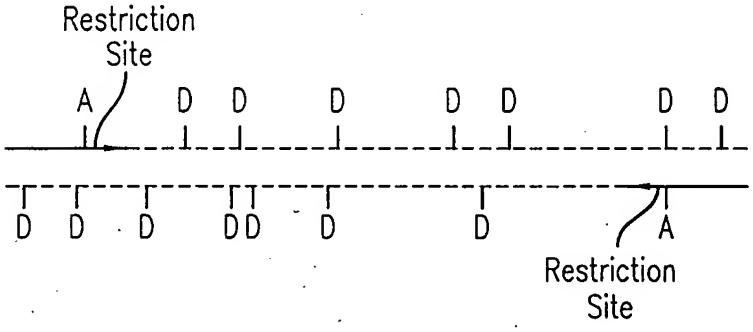
Acceptor

FIG. 4

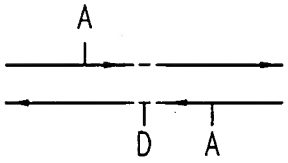
(A) PCR



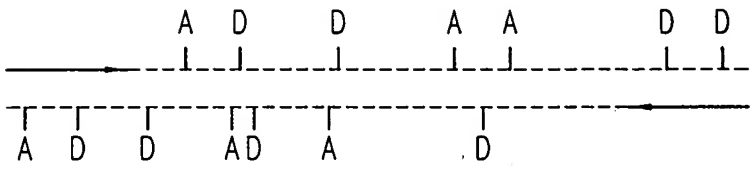
(B) SDA



(C) GAP–LCR



(D) PCR

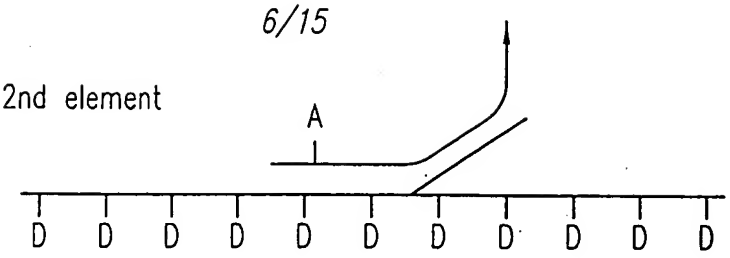


A=Energy Acceptor

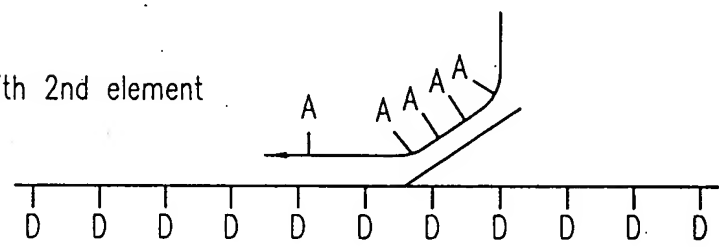
D=Energy Donor

FIG. 5

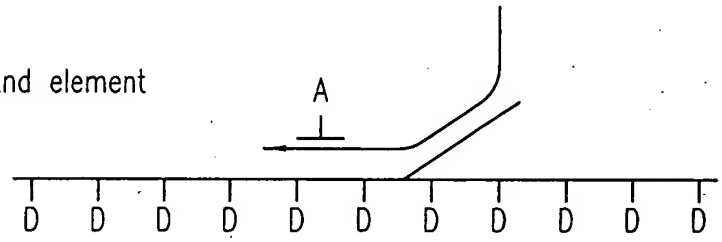
(A) Primer with 2nd element



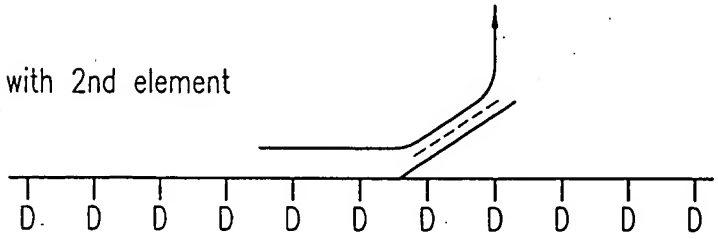
(B) Nucleotide with 2nd element



(B) Probe with 2nd element



(B) Intercalators with 2nd element



D=Energy Donor

A=Energy Acceptor

FIG. 6

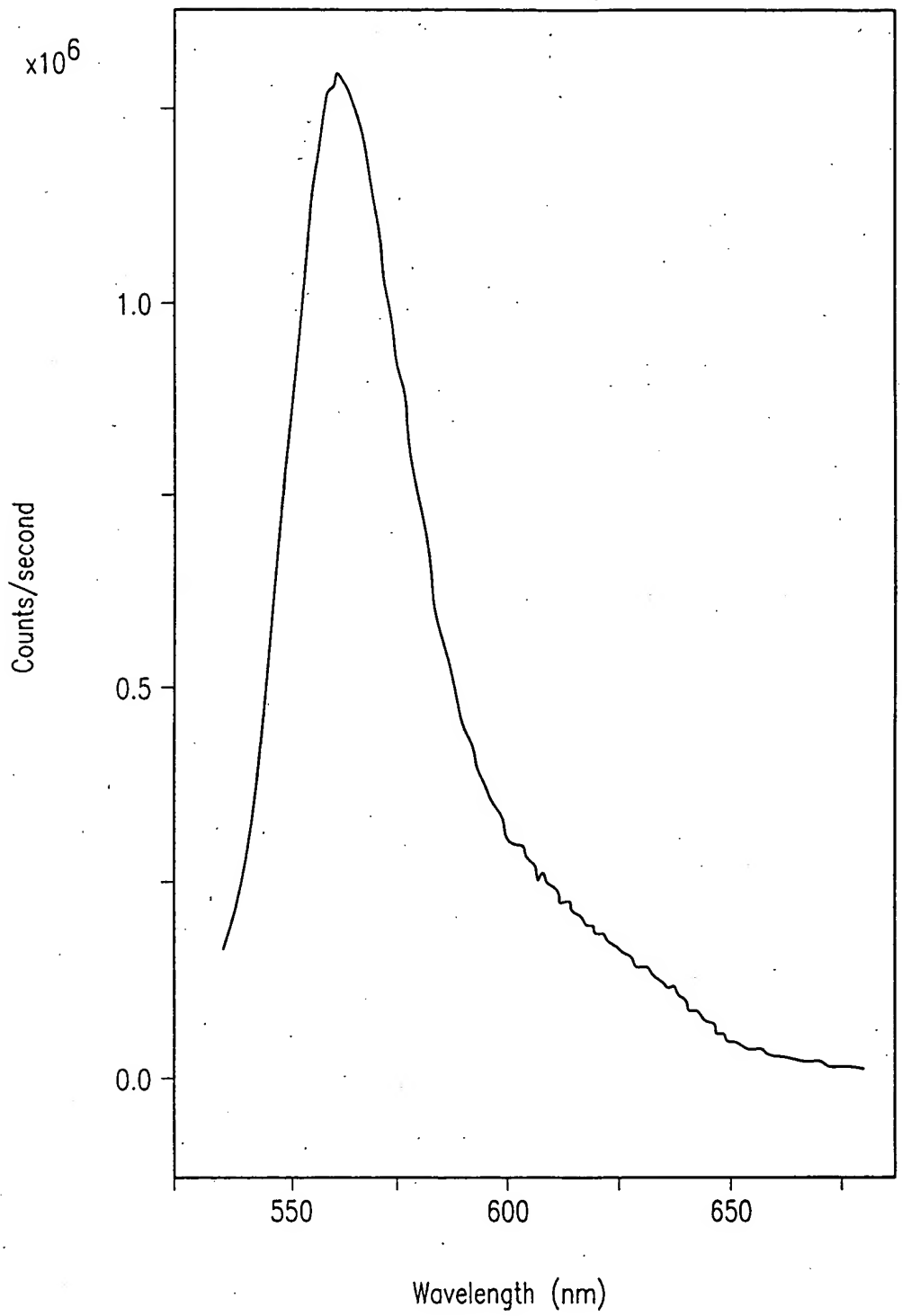


FIG. 7

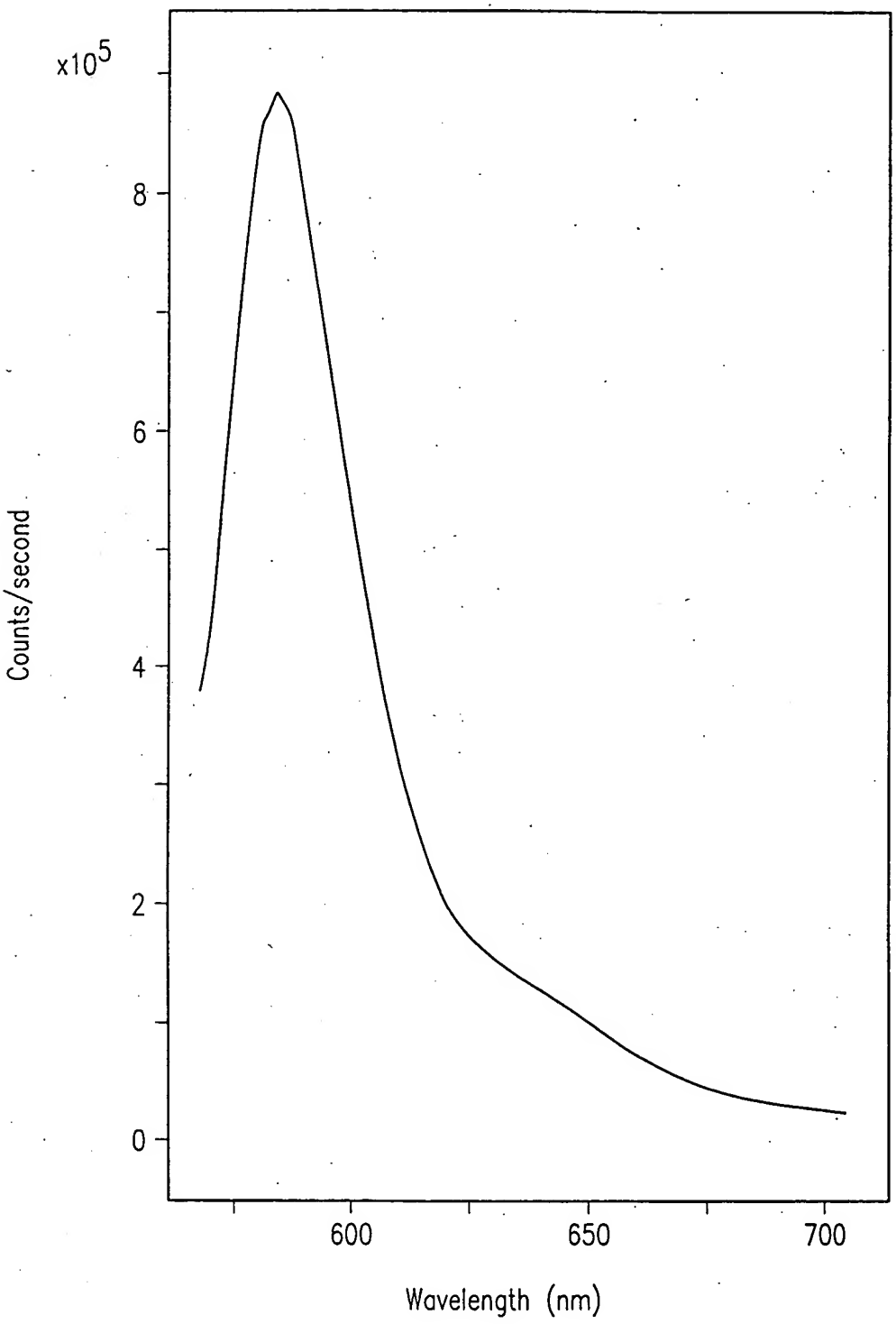
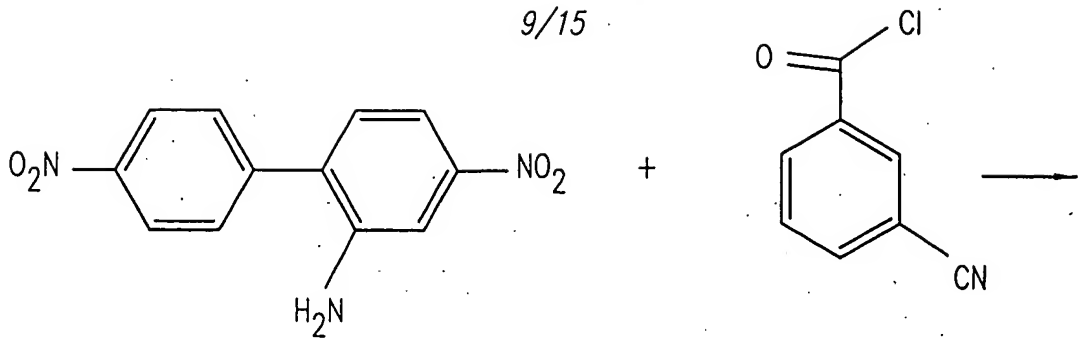
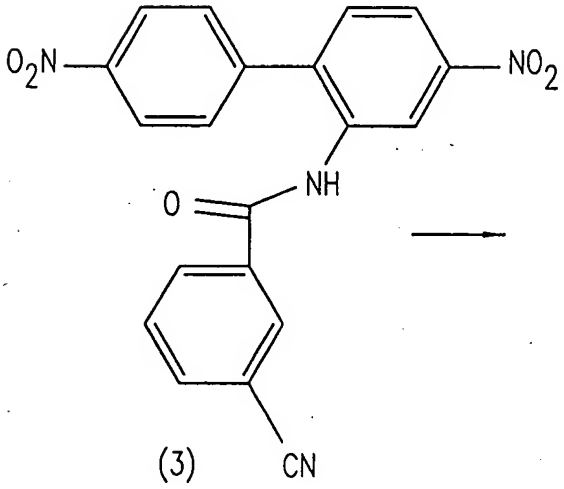


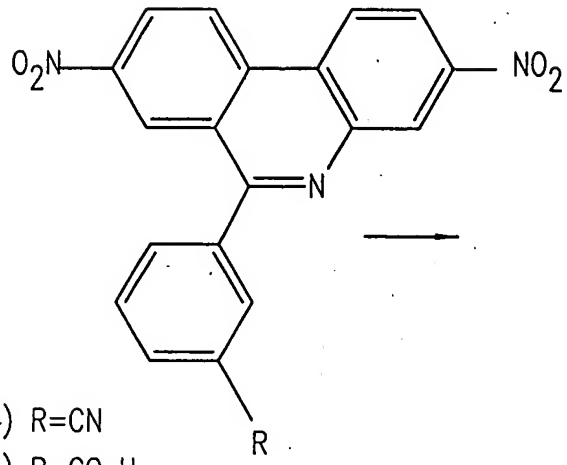
FIG. 8



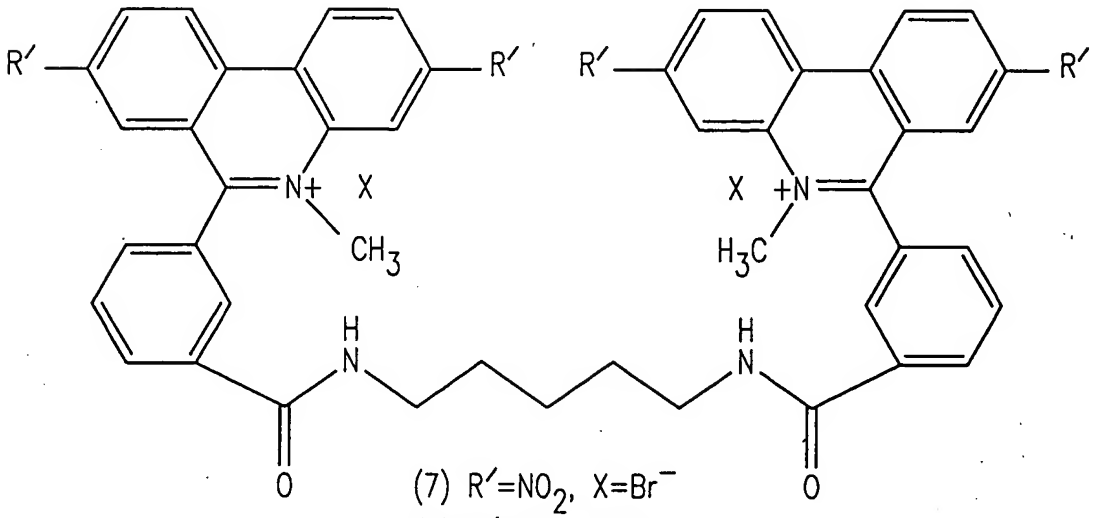
(1) (2)



(3)



(4) R=CN
(5) R=CO_2H
(6) R=COCl



(7) R′=NO_2, X=Br^-
(8) R′=NH_2, X=Cl^-

FIG. 9

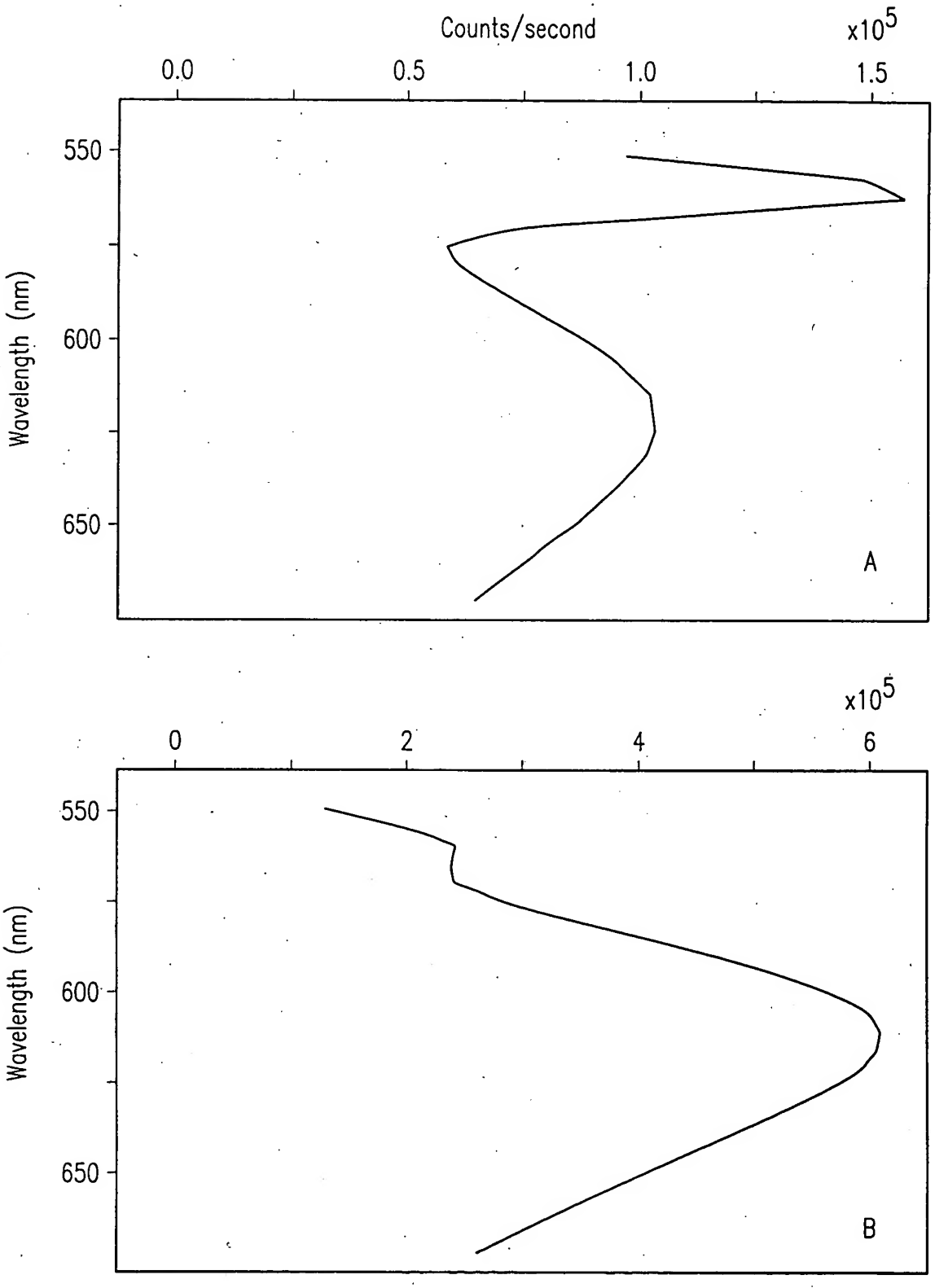

Counts/second
x10^5
0.0
0.5
1.0
1.5
550
600
650
Wavelength (nm)
A
x10^5
0
2
4
6
550
600
650
Wavelength (nm)
B
Illumination at 472 nM

FIG. 10

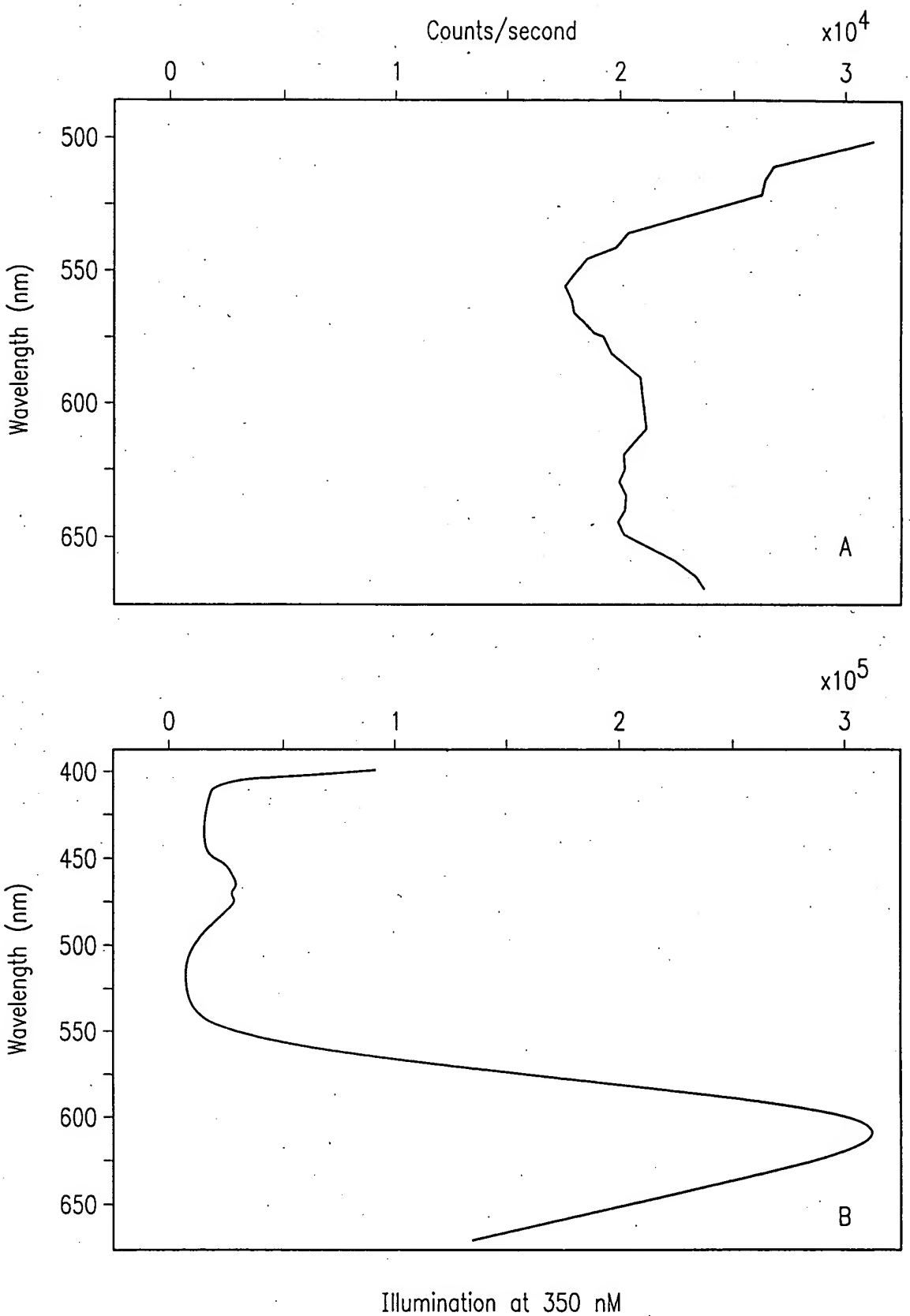

Counts/second
x10^4
0
1
2
3
500
550
600
650
Wavelength (nm)
A
x10^5
0
1
2
3
400
450
500
550
600
650
Wavelength (nm)
B
Illumination at 350 nM

FIG. 11

HIV Anti-sense Amplicon

Forward Primer

catgatccgg atgggaggtg

Hybridization Probe

taatggtg agtatccctg cctaactct X

catgatccgg atgggaggtg ggtctgaaac gataatggtg agtatccctg cctaactcta ttcactatcc ggatgtgc
gtactaggcc taccctccac ccagactttg ctattaccac tcatagggac ggattgagat aagtgatagg cctacacg

agat aagtgatagg cctacacg

Reverse Primer

FIG. 12

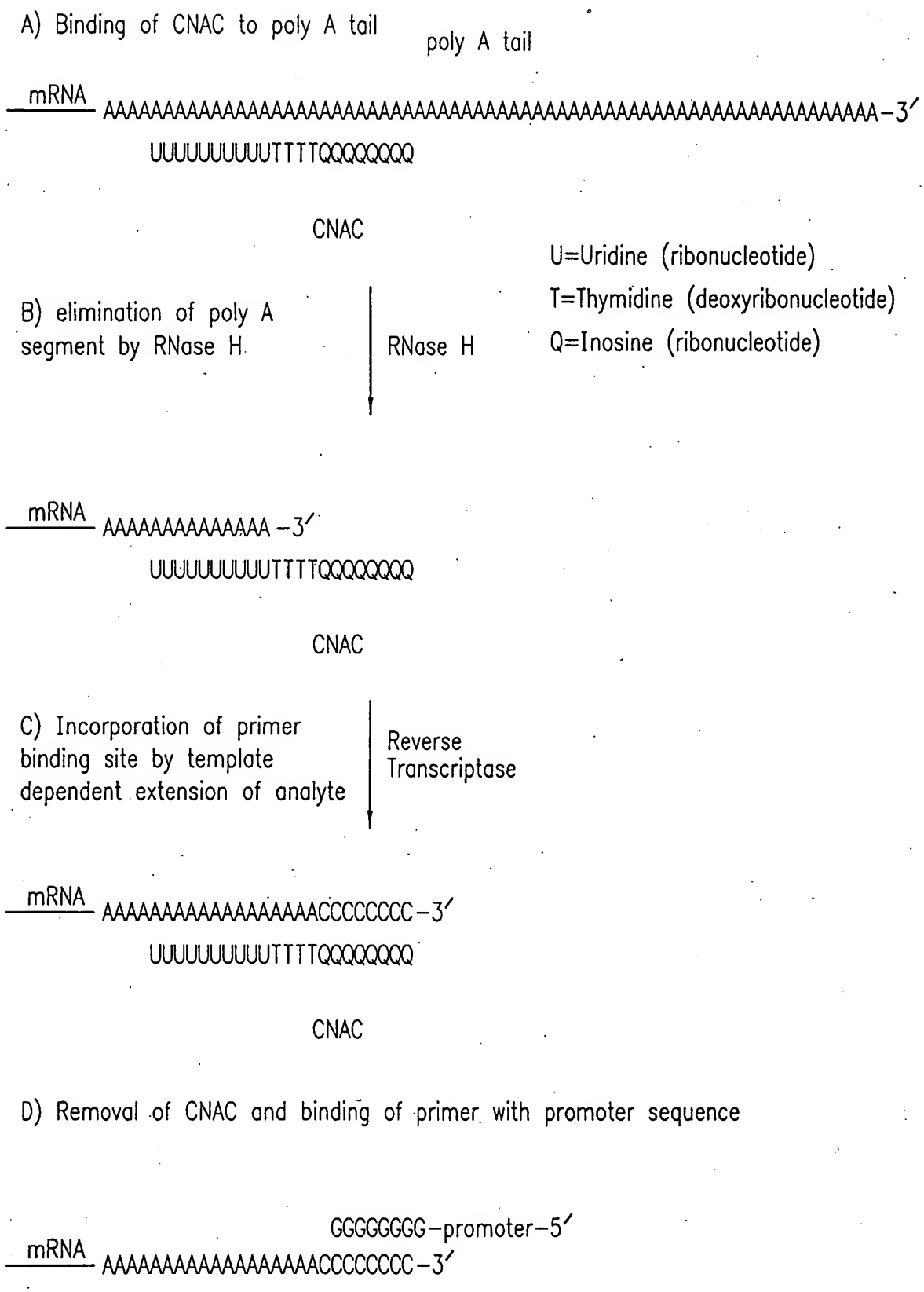

A) Binding of CNAC to poly A tail
poly A tail
mRNA AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA-3′
UUUUUUUUUUTTTTQQQQQQQQ
CNAC
U=Uridine (ribonucleotide)
T=Thymidine (deoxyribonucleotide)
Q=Inosine (ribonucleotide)
B) elimination of poly A segment by RNase H
RNase H
mRNA AAAAAAAAAAAAAA-3′
UUUUUUUUUUTTTTQQQQQQQQ
CNAC
C) Incorporation of primer binding site by template dependent extension of analyte
Reverse Transcriptase
mRNA AAAAAAAAAAAAAAAAAACCCCCCCC-3′
UUUUUUUUUUTTTTQQQQQQQQ
CNAC
D) Removal of CNAC and binding of primer with promoter sequence
GGGGGGGG-promoter-5′
mRNA AAAAAAAAAAAAAAAAAACCCCCCCC-3′

FIG. 13

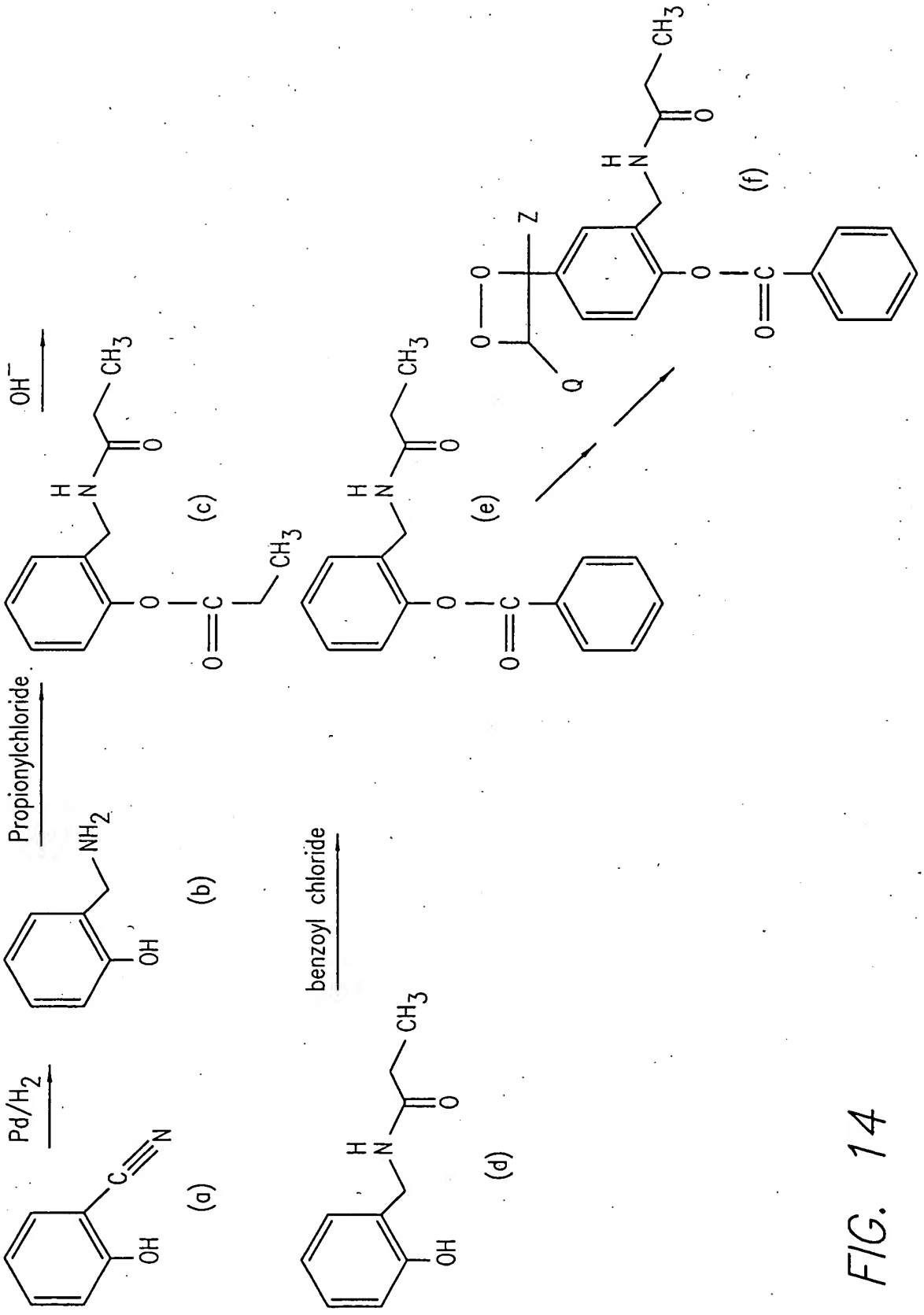


FIG. 14

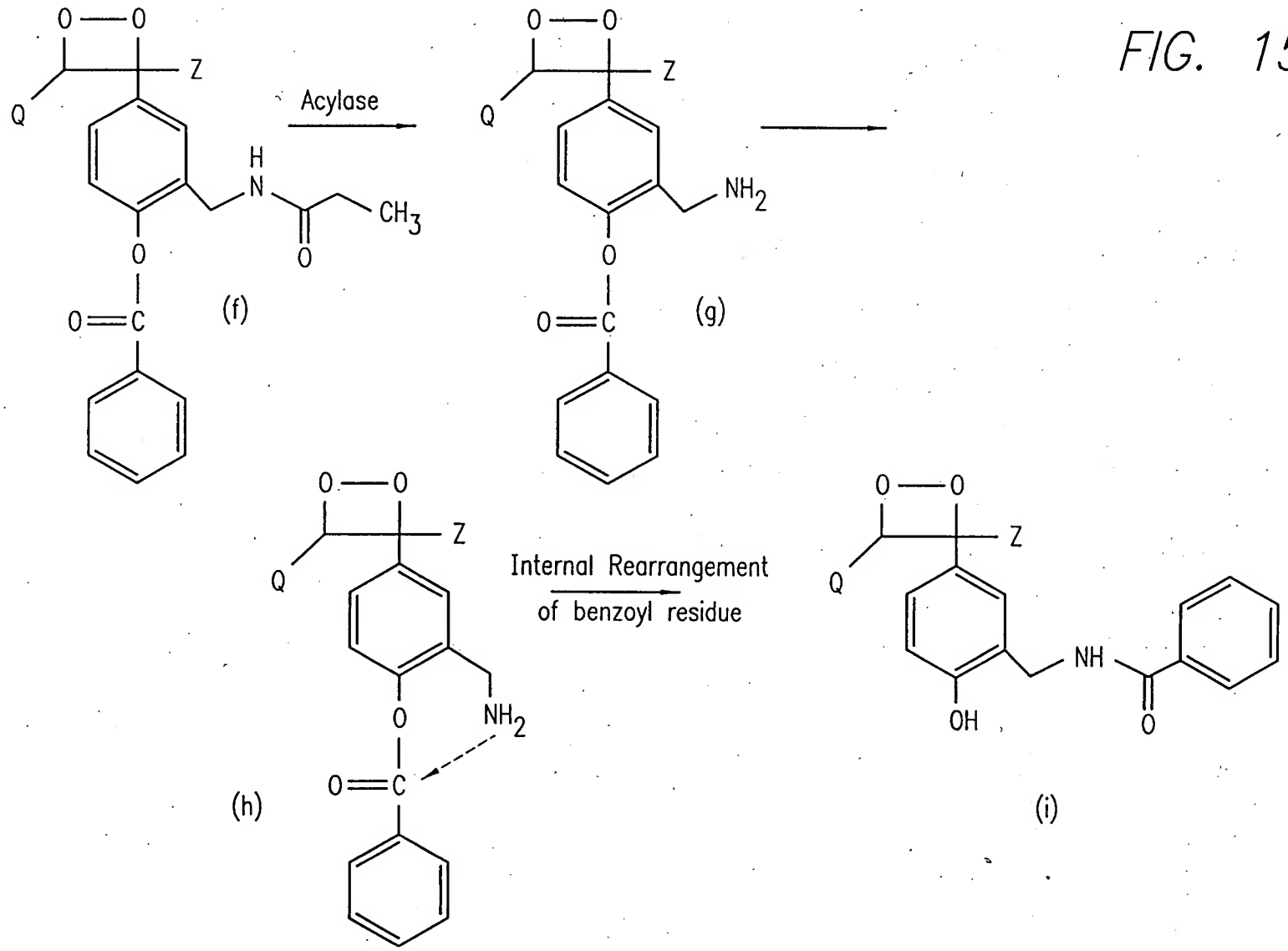


FIG. 15